Improvements in or relating to thermal supervisory apparatus

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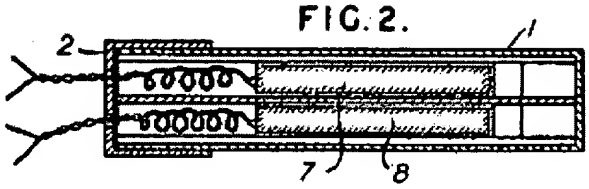
Abstract of **GB767383**

767,383. Temperature indicators for dynamo-electric machines. SIEMENS-SCHUCKERT-WERKE AKT.-GES. March 17, 1955 [March 17, 1954], No. 7885/55. Class 35. Thermally-sensitive elements 7, 8 are housed in a tube 1 embedded in the windings of a dynamo-electric machine and closed by a cover 2.



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PATENT SPECIFICATION

767,383

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COMPLETE SPECIFICATION

Improvements in or relating to Thermal Supervisory Apparatus

We, SIEMENS-SCHUCKERTWERKE AKTIENGESELLSCHAFT, a German Company, of Berlin and Werner-von-Siemens-strasse 50, 13a Erlangen, Germany, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The invention relates to thermal supervisory apparatus for use with an electric winding such as an electric machine winding or the like.

For the thermal protection of the windings in electric machines, thermostats are firmly embedded in the machines as tripping-elements (for example in the form of a thermo-couple or of a bimetallic trip), so that they may be directly influenced by the thermal state of the windings and, in the event of an inadmissible thermal load (when a particular temperature is exceeded) may effect the disconnection of the winding. An unfavourable feature has been found to reside in that when such a built-in thermostat breaks down the associated winding must to a large extent be dismantled.

It is an object of the present invention to overcome this disadvantage.

According to the present invention there is provided a thermal supervisory apparatus for use with an electric winding such as an electric machine winding or the like, comprising a sleeve adapted to be located in the electric winding to be supervised, and one (or more) thermostat(s), the interior of the sleeve being shaped to allow at least one such thermostat to be mounted and held in, or removed from, the interior of the sleeve as an independent unit.

The sleeve has such an external form that it is firmly seated in the winding and is in intimate contact therewith, while the internal form of the said sleeve is adapted to the associated thermostat. Various types of thermostats, if desired having different sensitivity or different response temperatures, may be provided which fit into the same sleeve. In addition, a unit adapted to be fitted into the sleeve may be formed from a number of individual thermostats having different response temperatures.

For a better understanding of the invention and to show how the same may be carried into effect, reference will be now made to the accompanying drawing in which:—

Figure 1 shows a perspective view of a sleeve,

Figure 2 shows diagrammatically in section a sleeve having two thermostats fitted therein, and,

Figure 3 shows a part of a machine winding with a sleeve fitted therein.

Referring now to the drawing, in Figure 1, a sleeve which can be referred to as a holding sleeve is designated by 1 and an associated closure cap adapted to be fitted thereon is designated by 2. The holding sleeve has externally at 3 and 4 beads and at 5 transverse grooves. By virtue of this external shape, the holding sleeve can be firmly held in a winding, and it may without difficulty be adapted to the particular winding concerned.

The closure cap has apertures designated by 6 for the passage of connecting conductors for a thermostat to be fitted in the holding sleeve. Contact sockets for the reception of an electrical plug may also be fitted in the apertures. Other constructional forms of the closure cap are also possible. For example, it may be adapted to be screwed on.

In Figure 2, a holding sleeve is again designated by 1, a closure cap by 2, a transverse groove by 5 and apertures for the introduction of connecting conductors by 6. In the present example, two thermostats designated by 7 and 8 are provided. For their spatial separation, a wall 9 is provided. 10 and 11 are connecting conductors for the thermostats.

The external form of the thermostat or thermostats and the internal form of the holding sleeve 1 are so adapted to one another in each case that the thermostat or thermo-

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stats is or are firmly located in the sleeve in such a manner as to be largely insensitive to shock and vibrations.

Figure 3 shows how a holding sleeve can be fitted in the winding of an electric machine, for example of a motor or generator. The machine body is designated by 21, a machine winding by 22, a holding sleeve by 23 and connecting conductors for the thermostat fitted in the holding sleeve by 24. A closure cap 23*a* may be removed from the holding sleeve, while the holding sleeve itself is mounted firmly in the winding. With this arrangement, it is possible to remove the closure cap without difficulty and to fit or replace a thermostat as a whole without any appreciable expenditure of labour and time being necessary.

In addition to its application to machine windings, a holding sleeve of the form described may with advantage be applied to similar arrangements in which a thermal supervision or limitation is necessary and in which the exchange of a securely fitted thermostat would only be possible with a relatively great expenditure of time.

What we claim is:—

1. A thermal supervisory apparatus for use with an electric winding such as an electric machine winding or the like, comprising a sleeve adapted to be located in the electric winding to be supervised, and one (or more) thermostat(s), the interior of the sleeve being shaped to allow at least one such thermostat to be mounted and held in, or removed from, the interior of the sleeve as an independent unit.

2. An apparatus as claimed in claim 1, wherein the external form of the sleeve is so shaped that it can be reliably held in position by the electric winding to be supervised.

3. An apparatus as claimed in claim 1 or 2, wherein the interior of the sleeve and the external shape of the or each thermostat are arranged to be adapted to one another in such a way that one such thermostat can be firmly mounted in the sleeve so as to be insensitive to shock and vibration.

4. An apparatus as claimed in any one of the preceding claims, wherein the sleeve is designed to receive two or more thermostats simultaneously.

5. A thermal supervisory apparatus for use with an electric winding such as an electric machine winding or the like, substantially as hereinbefore described with reference to, and as illustrated by, the accompanying drawings.

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767,383 COMPLETE SPECIFICATION
1 SHEET
This drawing is a reproduction of the Original on a reduced scale.

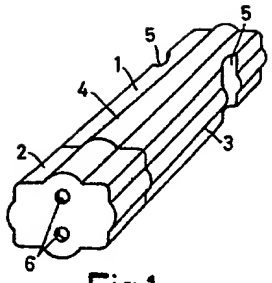

Fig.1

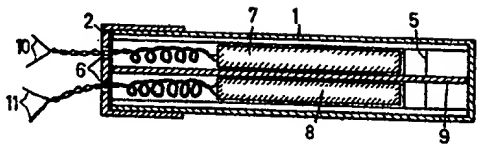

Fig.2

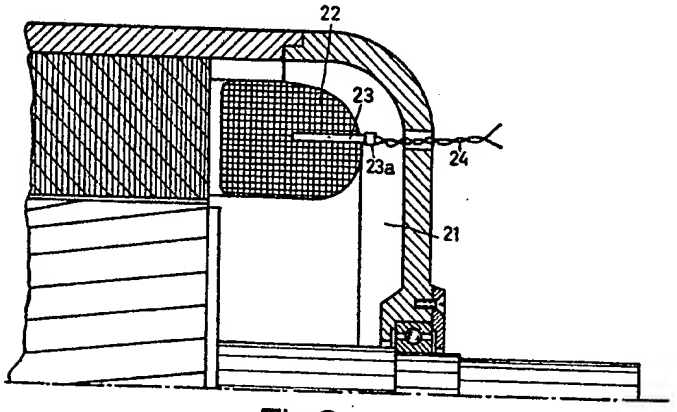

Fig.3